

ABSTRACT

Providing a high frequency power amplifier circuit and a radio communication system which can control output power by a power voltage, produce sufficient output power in high regions of demanded output power and improve power efficiency in low regions of demanded output power. In a high frequency power amplifier circuit (RF power module) which comprises two or more cascaded FETs for amplification and controls output power by controlling power voltages of the FETs for amplification to gate terminals of which bias voltages of a predetermined level are applied, different transistors for power voltage control are provided for a last-stage FET for amplification and preceding-stage FETs for amplification. The transistors for power voltage control generate and apply the power voltage so that the preceding-stage FETs for amplification saturate when a demanded output level is relatively low.